Problem Solving Using Spreadsheet Software – Block 2

Exercises

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The New York Taxi Driver's problem

- You are the operator of a taxi in New York City. You have just dropped off a passenger at LaGuardia Airport, which is approximately 12 miles from Manhattan –the centreof New YorkCity. Taxis queue to pick up passengers at LaGuardia, so you have two choices –enter the two hour queue for a passenger, or leave the airport empty to go looking for a fare in Manhattan.
- Which option would you choose ("stay" or "leave"), and how would you decide?

Remember the 4-step approach

Instructions

- This exercise should be partially completed on Moodle before your exercise class.
- It will work in 4 steps
  - In each step you will work first on your own
  - Next, you can answer some questions in a Moodle quiz
  - After completing the quiz you will get access to a solution
- This exercise is ungraded
- The final step will be completed in groups during your exercise class.

Step 1: Fill in the Problem Statement Sheet

Basic question to be resolved

1. **Perspective/context**
2. **Criteria for success**
3. **Scope of Solution Space**
4. **Constraints within solution space**
5. **Stakeholders**
6. **Key sources of Insight**

Step 1: Solution

Basic question to be resolved

After having dropped off passengers at LaGuardia airport, should the taxi driver leave the airport and look for a ride in Manhattan or wait at LaGuardia for other passengers to maximize his profits?

1 Perspective/context

Taxi driver needs to decide now as he has just dropped off passengers at the airport

2 Criteria for success

Selecting the option with maximum profit

3 Scope of Solution Space

Two options
–"stay" (and wait)
–"leave" (and search)

4 Constraints within solution space

In the hypothetical scenario no other options exist

5 Stakeholders

Taxi driver
Passengers
Other taxi drivers

6 Key sources of Insight

Interview with taxi driver

Step 2: Structuring the problem

- Before getting into the details, what factors would you consider in making your decision? Structure the problem into a “profit” tree for each alternative.